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SF Public Utilities Commission

Market Street Planning Project

Final Report

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*This report is dedicated to the memory of Mr.
Glenn Erikson, San Francisco Department of City Planning,
for his tireless efforts to resolve city policy in
support of a Market Street Transit Thoroughfare.*

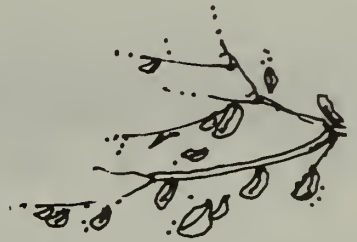
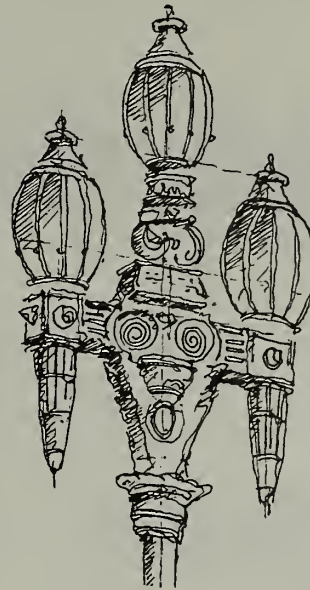
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Market Street planning
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Introduction



In 1968, the City embarked on a Market Street Beautification Project including plans to virtually remove public transit from the surface of the street. During the intervening period, office space in downtown San Francisco increased by 35 million square feet, more than doubling the original supply. Patronage on the new Muni Metro subway as well as on the 17 Muni surface lines serving Market Street has continued to grow apace. At present, 185,000 trips are carried by Muni's surface lines, with another 150,000 on Metro—more than one out of every three Muni trips systemwide.

In 1983, the Board of Supervisors formally acknowledged the need to maintain and improve transit operations on Market Street by amending the 1968 plan to make way for four lanes of transit, including the retention of passenger boarding islands and operation of historic streetcars. The Downtown Plan has more recently reiterated that Market Street transit be expanded in order to better serve downtown growth.

This new concept—a Transit Thoroughfare—is now a reality. On August 7, 1985, Muni in cooperation with the Department of Public Works began a nine-month trial operation of four-lane service on Market Street between the Financial District and Civic Center. Accordingly, Muni buses and trolley coaches now operate in two lanes in both directions, along with streetcar service as part of the Historic Trolley Festival. The recently completed trolley overhead wire project on Market Street has made expanded transit service possible along this segment of the street.

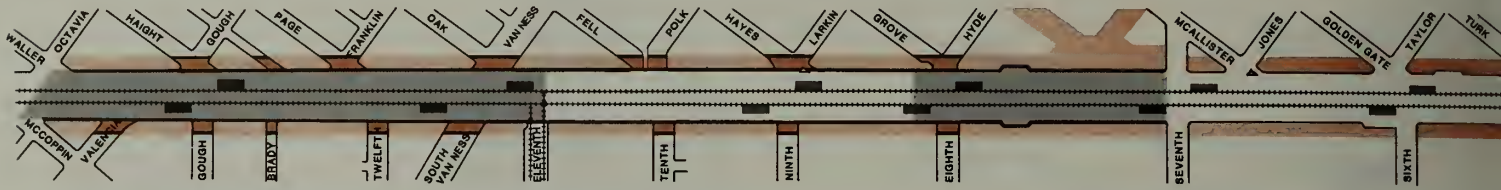
Boarding islands and curb stops have been relocated by DPW to serve the four lanes of Muni vehicles. DPW has also implemented various street area and signalization changes, and the Police Department has initiated special traffic control and enforcement procedures. All of these measures have been geared to improve transit speed and reliability.

Following the nine-month period, it is intended that the Transit Thoroughfare shall become permanent, and that the Market Street Beautification Project be completed with amendments to the original design plan required by Muni's four lane operation. Market Street will be regraded and resurfaced, new streetcar tracks will be laid, boarding islands and adjacent traffic lanes will be widened, crosswalk and sidewalk bricking will be finished, granite curbs and gutters will be installed, and new transit shelters will be constructed as part of a city-wide program. The Historic Trolley Festival will continue to run on Market Street as a regular summer Muni service, evolving into the year-round 'F' Line operation as track and equipment improvements are completed and related transit projects are finished on the Embarcadero.

Implementation of the Market Street Transit Thoroughfare beyond the initial test period awaits the City's approval of recommendations contained in this report, and the programming of adequate funding sources. Given these policy actions, the Market Street beautification process can be completed, incorporating a Transit Thoroughfare able to accommodate existing Muni patrons with enhanced efficiency, and capable of absorbing anticipated growth in transit use as forecast in the Downtown Plan.

Background

Market Street Today



For over twenty years, the City of San Francisco has been actively pursuing the revitalization of Market Street, with decidedly mixed results.

Beginning in 1963 a design plan was developed to transform Market Street into the "Champs Elysees of the West." That proposal, inspired by the decision to build BART, and a separate tunnel for Muni's streetcars, led to what has become one of the longest running public works projects in the City's history.

Work on the surface of Market Street was originally forestalled due to successive delays in completing Muni's Metro subway and acquiring new streetcars (aka Light Rail Vehicles.) The extraordinary price inflation of the 1970's served to raise costs above available funds as a result, further postponing project completion. In the meantime, transportation issues generally and the City's transit policies in particular changed dramatically.

The Schematic Street Design Plan approved by the Board of Supervisors for Market Street in 1968 (Res. 116-68) and subsequently constructed in the sidewalk and plaza areas, assumed that most public transit would disappear from the street east of Van Ness Avenue. Streetcars were to be replaced by the Muni Metro subway; most surface Muni lines were to be rerouted onto Mission Street or realigned to intersect with Market Street but not travel along it. Only a shuttle bus operation was to remain, serving local trips and Muni transfers.

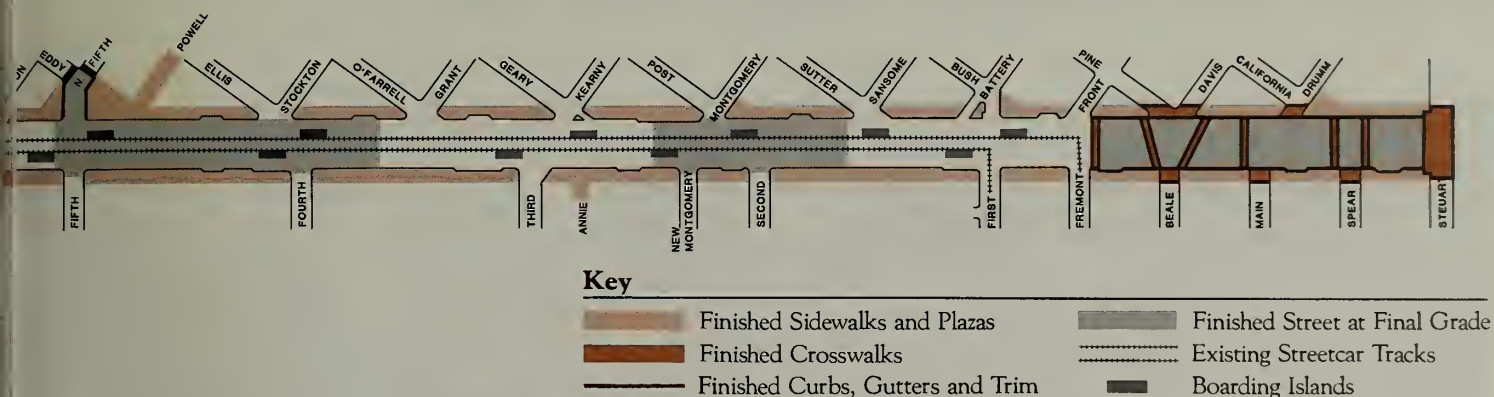
Following initial construction of the 1968 Plan, City staff together with various citizens and interest groups began questioning the inherent assumptions about reducing Muni service on Market Street. In 1978, the

Board responded by amending the Plan (Res. 213-78) to require the retention of trolley overhead wires. This sent a strong message to the community that Muni service would in fact continue to operate on the surface of Market Street.

In 1979, the Board empowered itself (Res. 846-79) to actively control any track or boarding island removals from the street, and in 1981 authorized a "Market Street Design Planning Study" (Res. 240-81) to review transit operations and street design, including the retention of streetcars. Following hearings on the Design Planning Study in 1982 and 1983, the Board unanimously resolved to amend its policy intent with respect to Market Street Beautification (Res. 160-83), calling for operation of four lanes of Muni service east of Van Ness Avenue, using "... safe and aesthetically designed passenger loading islands and overhead wires. . ." The Board further resolved to support the retention of surface streetcar operations, including the upgrading of streetcar tracks on Market Street east of Van Ness, with a connection to the proposed 'E' Embarcadero streetcar line.

The Board requested the Public Utilities Commission to conduct public workshops and hearings, with the objective of developing the specifics of a streetcar plan and necessary amendments to the 1968 Beautification Plan for their consideration and adoption.

The Market Street Planning Project was created in January 1984 to develop a response to the Board. Administered by PUC Planning & Development through a Project Manager, the first task was to circulate copies of the 1982 Design Planning Study and assemble a Technical Advisory Committee (TAC) to review and update report findings.



An Interim Report was thereafter prepared summarizing the TAC's assessment of Market Street planning activities to date. The report was circulated to nearly 1,000 citizens and organizations, and highlighted planning issues yet to be resolved in responding to revised Board policy. The report was directed to the Market Street Community Advisory Committee (CAC) for developing final recommendations.

The San Francisco Public Utilities Commission organized the CAC in 1982 to work with the City and its consultants in designing a new trolley overhead wire system for Market Street. The success of that endeavor and the interrelatedness of the two projects argued convincingly that this liaison should be maintained for the Market Street Planning Project.

The Committee consists of individuals representing a cross-section of interests and professional expertise both in and out of City government. The CAC's titular spokesperson, Bernard Averbuch, is Executive Director of the Greater Market Street Development Association and has participated in all aspects of Market Street activities over the years.

In addition to developing the planning recommendations transmitted herein, CAC support has already enabled Muni in cooperation with the Department of Public Works, to commence expanded four-lane operations on Market Street for a nine-month trial period. The results of this trial will provide the necessary prerequisite experience for a permanent Transit Thoroughfare for Market Street, consistent with amended Board policy.

The Market Street Community Advisory Committee, Technical Advisory Committee, and Ripley Associates Urban Design Consultants – the Project Team – in concert with the City's Transportation Policy Group, therefore recommend that the initiatives outlined in this report be approved pursuant to Board Resolution 160-83, and that appropriate steps be taken to move forward in adopting a specific project plan, including:

- Amendments to the 1968 Market Street Schematic Street Design plan.
- A plan for the operation of surface streetcars on Market Street. (The F-Line Streetcar)

It must be emphasized that recommendations set forth by this report do more than simply respond to the operating needs of Muni. They have been developed as an integral part of the urban design concept underlying completed elements of the Market Street Beautification Project – elements which have successfully withstood the test of time.

While serving a critical transportation function, the recommendations seek to balance transportation needs with concerns for open space, pedestrian amenities and visual enhancement of San Francisco's urban core. In short, they are not proposed as ends in themselves, but as the important means to preserving what Market Street is and has been for generations of San Franciscans: a true artery in the transportation sense; a great urban boulevard; and an intense and lively concourse for human activity.

Design Recommendations

Amendments to the 1968 Market Street Schematic Street Design Plan

The Ciampi-Halprin-Warnecke Schematic Street Design Plan which was adopted in 1968 has been substantially completed along Market Street between Steuart and McCoppin Streets. Its streetscape elements are extremely handsome and durable – on a par with similar boulevards in the great cities of the world.

Urban design is concerned with all users but is primarily oriented to pedestrians. Detailed design decisions regarding street furniture, paving materials, proportions of curb width to sidewalk width – all of which contribute to the visual appearance of the streetscape – are primarily perceived by pedestrians. Auto and transit users enjoy the view down the corridor and need to be able to understand directions easily, but whether a curb is granite or concrete is not perceivable from a moving vehicle. Market Street is primarily a pedestrian-oriented boulevard, which is heavily served by transit. It is pedestrians who shop, who stop in the restaurants and work in the offices above; who buy flowers and provide street entertainment; who above all make the city and its major streets “where the action is.”

The materials chosen for Market Street are not the least expensive from either an initial or maintenance point of view. They are the kind of materials which acquire “patina” and beauty as they age rather than deteriorating over time. The significance of adequate maintenance, repair and replacement cannot be over emphasized in this context.

In the final analysis, the quality of a city’s investment in the public infrastructure determines the quality of private investment. If it is San Francisco’s objective to attract the best development partners in the nation and world to Market Street – which has been the case in the financial district, and is beginning to happen in the retail district and Civic Center – then the City itself must set the design and maintenance standards.

It is the Project Team’s majority recommendation, given this objective, to retain the elements, materials and dimensions of the 1968 plan, commensurate with the requirements of Muni’s Transit Thoroughfare operation. Variation in design should occur mainly in the vicinity of boarding islands as required due to their widening and the widening of adjacent traffic lanes – and then only in dimension, not in materials. Additional changes in selected elements are also recommended based on a decade of street operations and maintenance experience.

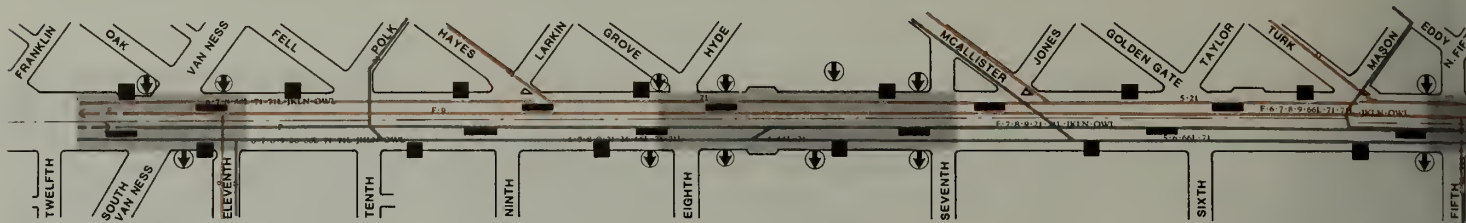




Drawing by Ripley Associates

Design Recommendations

Market Street Transit Thoroughfare



In February 1983, the Board of Supervisors unanimously resolved to amend policy intent of the 1968 Market Street Design Plan based on a changed perception of the street's transportation function. Formal action followed prolonged reevaluation of Market Street's evolving traffic, pedestrian and transit circulation characteristics.

Traffic

According to Department of Public Works cordon counts, lower Market Street presently serves a relatively minor traffic circulation function, with average daily volumes ranging between 10,000 and 18,000 vehicles per day. (This compares to 50-55,000 vehicles per day on Van Ness Avenue, for example.) Trucks and other service vehicles represent less than six percent of this vehicular traffic.

Pedestrians

Lower Market is a densely utilized pedestrian corridor, supporting local and regional rapid transit services along an axis which interconnects San Francisco's financial, retail and governmental activity centers. Completed elements of the 1968 Plan, notably wide, tree-lined sidewalks, are ideally suited for this role. During the noon hour, pedestrian volumes routinely exceed 4,000 persons per hour past a given point in the vicinities of Montgomery and Powell Streets.

Transit

Market Street's preeminent role is as the highest transit-use street in the City. In addition to the two-level BART/Muni Metro subway network, the street presently carries portions of 17 Muni surface routes. A total of up to 100 transit vehicles per direction per hour operate during peak periods. All routes have eastern terminus at either the Transbay Terminal or near the Ferry Building adjacent to Embarcadero Center, and serve neighborhoods throughout central and western San Francisco as well as downtown itself. Planning statistics indicate that over one-third of Muni's 900,000 daily patron trips travel on or under Market

Street at some point. Muni's current Five-Year Plan calls for further increases in these totals, with 1990 transit ridership to downtown expected to increase by as many as 21,000 daily trips.

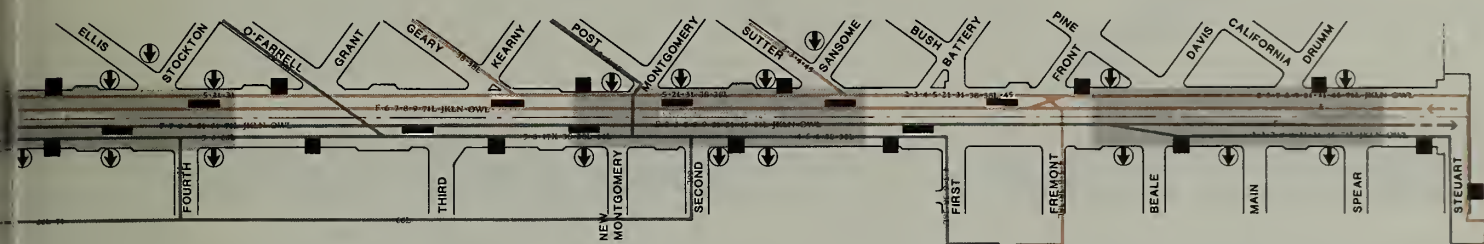
Market Street has been designated as a transit preferential street in the City's Master Plan since 1971. The just-approved Downtown Plan for San Francisco and its associated EIR identifies Market Street (Van Ness to Steuart) as the top citywide candidate for conversion to a Transit/Commercial Mall.

The current Muni operating plan for Market Street places special emphasis on improved transit service reliability and freedom from delay. Relatively small time savings, when spread over many runs and vast numbers of riders can pay large returns to Muni in terms of productivity and efficiency improvements and cost savings.






The Transit Thoroughfare Project has already relocated curb and island stops in both directions, to the degree possible, along near (approach) side block faces of numbered street intersections from First Street to Van Ness Avenue. All stops are thereby arranged symmetrically, with generally one minute travel time spacing from stop to stop. This in turn allows for directionally symmetrical signal timing, with the objective being a minimum delay to transit vehicles. Passenger loading is intended to take place during the signal's red phase, with the green phase permitting transit vehicles sufficient time to travel to the next stop including routine delays and mid-block intersections.

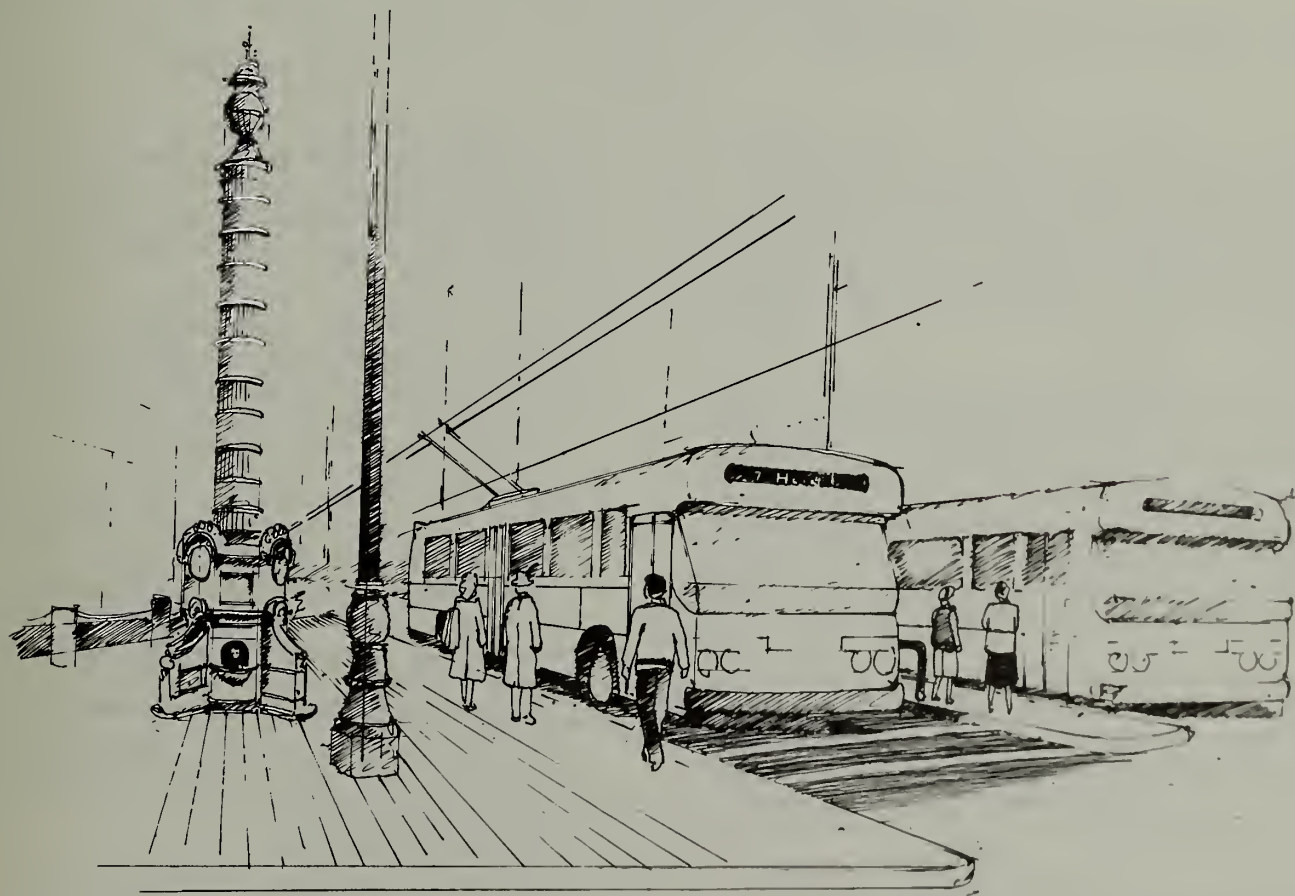
In the plan approved by the PUC and DPW for trial operation, islands have been placed at the near side of crosswalks. However, curb stops generally trail behind on the same block face. This permits a staggered pattern of transit stops, and allows other traffic to bypass loading Muni vehicles.

The resulting four lane Transit Thoroughfare, including streetcars, reestablishes Market Street's traditional role as San Francisco's primary public transportation corridor.



Key

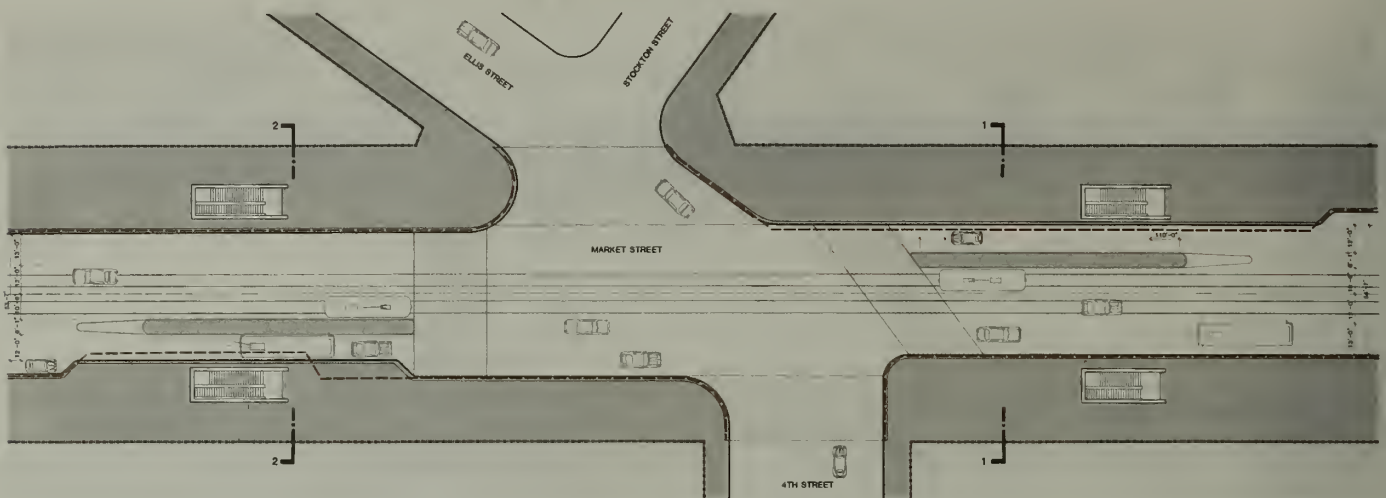
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|--|--|
|  Outbound Service |  Curb Stop |
|  Inbound Service |  BART/Muni Metro Station Entrance |
|  Island Stop | |



Drawing by Gensler and Associates

Design Recommendations

Street Area Configuration



Key

----- Existing Curb

Plan at Fourth Street and Market

Drawing by Ripley Associates

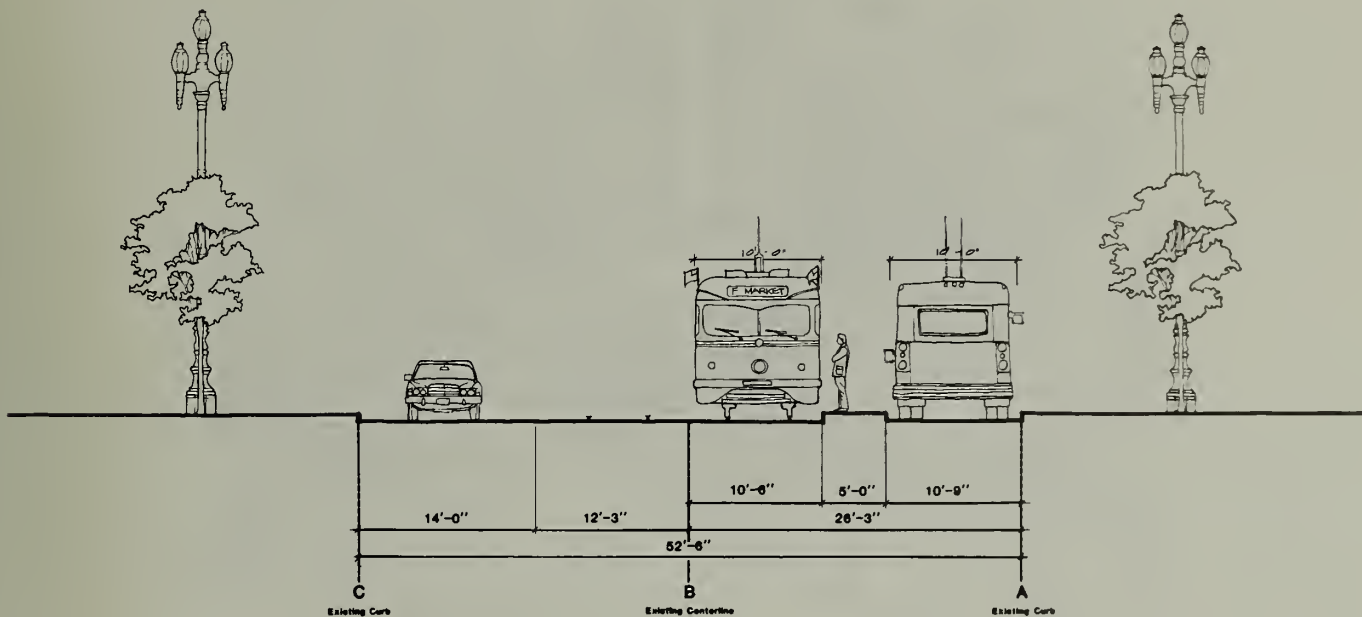
The key variable in street design considered by the Project Team revolved around the way in which widened islands and adjacent traffic lanes can best be incorporated into a finished street area defined by millions of dollars of completed sidewalks, relocated utilities, rapid transit entrances, ventilation shafts and so on.

The Market Street Design Planning Study (June 1982) had recommended a so-called "weave" solution. The proposal was to widen islands inward toward the center of the street, thus establishing a weaving pattern to the center traffic lanes (and tracks) in the vicinity of islands. This recommendation was developed primarily in deference to an urban design objective of maintaining a uniformly straight and parallel curb line.

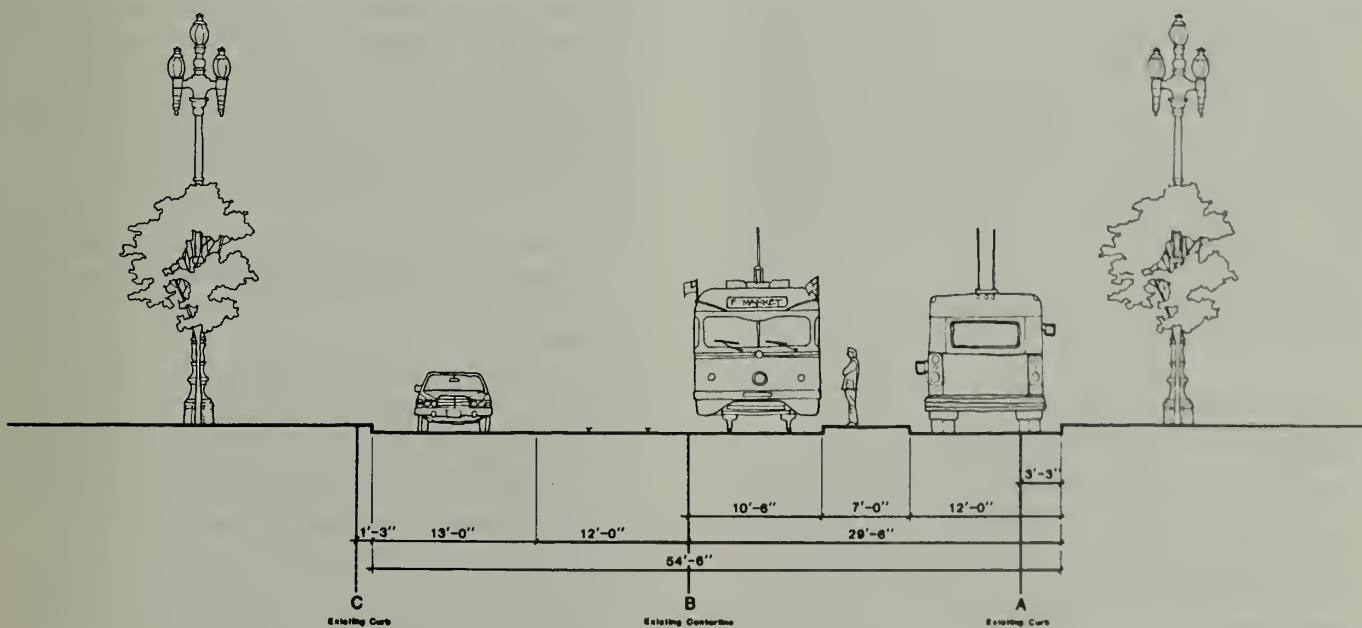
In reconsidering this finding, the Project Team concluded that while desirable, a uniform curb is not mandatory from a design perspective. In fact, the linearity of street and track in the "non-weave" configuration was thought to outweigh linearity of the curb in an overall visual context.

Notwithstanding these design arguments, the Project Team was unanimous in its support of a "non-weave" solution based on four overriding criteria:

1. **Cost** - A "non-weave" solution results in a \$3.5 million cost savings relative to a "weave" solution:
 - Finished streetcar track and street surfaces over the BART/Metro stations need not be rebuilt.
 - Fewer utility relocations will be required due to sidewalk narrowing than would be required by weaving tracks and relocating islands, and rebuilding BART/Metro ventilation shafts can also be completely avoided.
2. **Safety** - "Non-weave" is regarded as safer for traffic and transit operations, given the real potential for head-on collisions in Market Street's constrained street area with seven-foot center lane offsets required under the "weave" configuration.
3. **Disruption** - "Non-weave" is less disruptive to construct. In addition to preserving finished street and tracks over the BART/Metro Stations, "non-weave" construction activity will be concentrated along curb and sidewalk areas adjacent to the sixteen islands between Eighth and Fremont Streets. Assuming a maximum of 200 linear feet of curb and sidewalk to be realigned for each island, 3000+ linear feet of curb must be reconstructed. The remainder of the street in this segment, totalling over 16,000 linear feet of curb, may be completed to the original 1968 design specifications.
4. **Flexibility** - "Non-weave" retains future flexibility for traffic and transit operations. Weaving tracks and associated work is far more expensive to modify at some future date, than is reestablishing the sidewalk.



Section 1 — Existing Configuration



Section 1 — Recommended "Non-Weave" Configuration

Drawings by Ripley Associates

Design Recommendations

Passenger Boarding Islands



Boarding Island with Pedestrian Railing

Four lanes of parallel transit service on Market Street require passenger boarding islands in conjunction with curb stops. Unlike other cities which may use skip stop service at the curb, the predominant use of electric trolleys and streetcars in San Francisco with their associated wires requires street area stops. Established Board policy acknowledges this fact, calling for the use of "... safe and aesthetically designed passenger loading islands. . ."

Accordingly, design criteria for islands have been developed in four categories:

1. **Safety** - Placing structures and pedestrians in a street right-of-way is potentially unsafe. In order to minimize the dangers to pedestrians, transit passengers and motorists alike, observation and enforcement of existing laws is of paramount importance:
 - The California Vehicle Code (Sec. 21756) restricts vehicular speeds to 10 mph when passing a transit vehicle loading passengers at a safety zone (e.g., island).
 - Marked crosswalks at signalized intersections provide safe pedestrian passage from curb to island in every case.

The recommended design elements enhancing safety focus on increased island and curb lane width, as well as other features:

- Increasing island width from the existing 5-feet to between 6-feet 1-inch and 7-feet is recommended, thus reducing overcrowding and the risk of being forced off and into a traffic lane. (A range in widths derives from fitting islands into the existing street design under a "non-weave" configuration.)
 - Increasing curb lane width adjacent to islands from the existing 10-feet 9-inches to a uniform 12-feet is recommended, enlarging the spatial separation of vehicular traffic from pedestrians on islands and on sidewalks.
 - To reduce the hazards of boarding islands to motorists, driver alerting pavement textures, signs and other "passive" safety features are recommended including thermoplastic street stripes and reflectors.
 - Curb-side pedestrian railings may also be installed on islands, but are recommended as a uniform design element only in conjunction with wheelchair accessibility at this time (See "Accessibility.") Operational testing during the 9-month trial may suggest additional placements should behavioral observations show that such railings actually enhance pedestrian safety.
2. **Function** - Criteria for locating islands as an integral part of Muni's Transit Thoroughfare have already been adopted, and temporary islands are in



Boarding Island without Pedestrian Railing

Drawings by Ripley Associates

place as part of the ongoing 9-month trial. Uniform island lengths of 110-feet are also in place for the trial. These standards were adopted for all shared-use islands – islands used by both coaches and streetcars – in that two articulated coaches or three standard vehicles can be accommodated simultaneously. Streetcar-only islands have been sized to 60-feet in length.

3. **Appearance** - Since passenger boarding islands were not part of the original 1968 Design Plan, they should be designed to blend into the existing streetscape. It is therefore recommended by a majority of the Project Team that islands should be constructed to standard 6-inch curb height, with a brick paved surface patterned after sidewalk areas, and bordered by 6-inch granite curbs. A handicap ramp should be incorporated at the crosswalk end of those islands designed to be wheelchair-accessible.

DPW dissents on the recommendation for brick and granite materials due to high installation and maintenance costs as well as concerns about pedestrian safety. DPW has no alternative materials recommendation, however.

Island 'gores' (traffic lane dividers at the traffic approach-end) should be flush with the street, and consist of a rough textured surface area. Also, at the island's gore-end and inside the island curbs, two granite

bollards are to be placed for pedestrian protection from oncoming traffic. A break-away bollard anchorage is to be engineered for potential vehicular impacts as well. Reflectors are to line the gore borders and be placed on the vertical bollards. Speed limit (10 MPH) signs are to be incorporated at the approach end of islands, designed to standard.

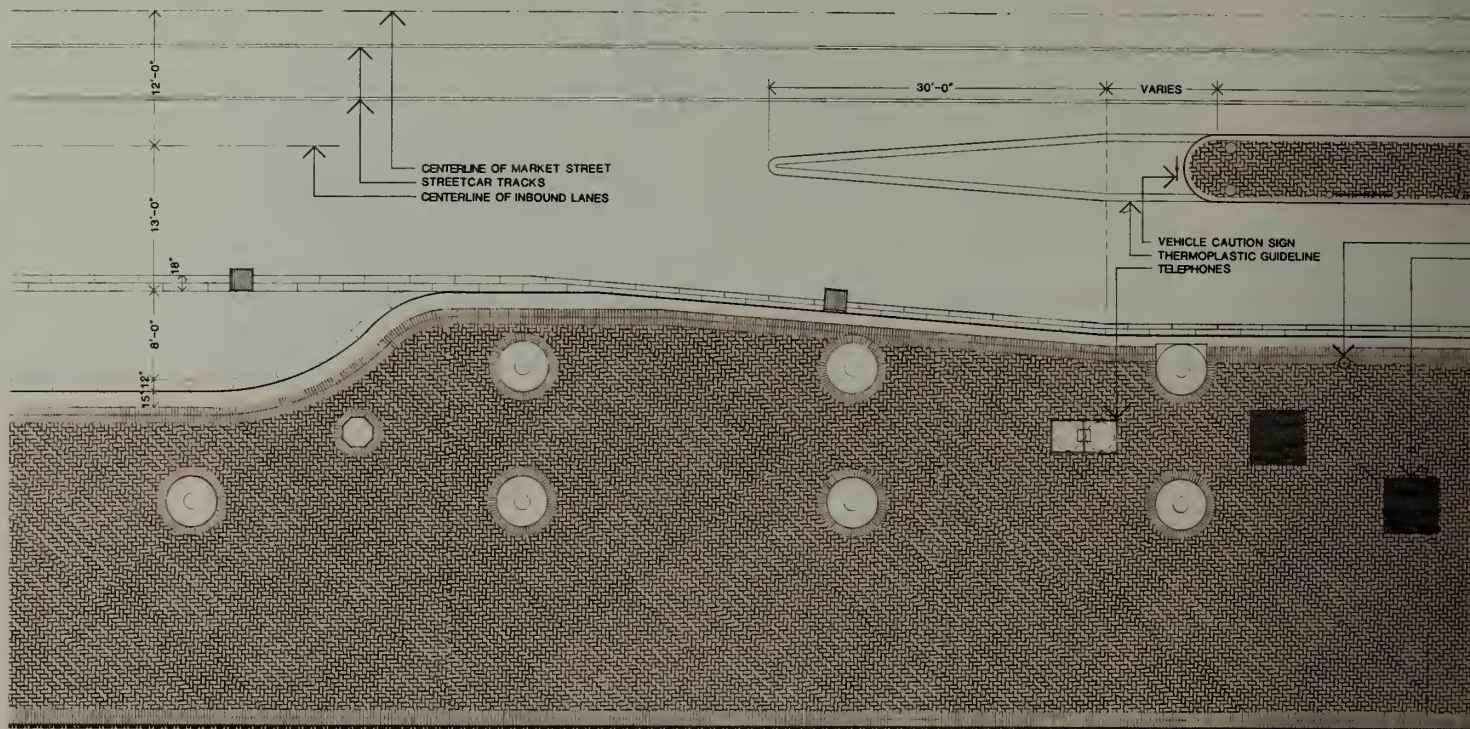
4. **Accessibility** - Boarding islands must be designed to serve the needs of elderly and handicapped persons. Location of all islands at signalized crosswalks permits safe access for ambulatory persons. Demonstration testing has shown, however, that 7-foot width islands in conjunction with curbside railings on the island are required for safe wheelchair access.

Muni's E&H Advisory Committee has reviewed alternative island configurations and agreed on installation criteria: given constraints on island width imposed by Market Street's finished elements, 7-foot islands are to be located no more than three blocks apart.

The recommended "non-weave" plan successfully accommodates this criterion. Of the sixteen shared-use islands, nine (four inbound, five outbound) are 7-feet in width, three are 6-feet 3-inches in width, and four are 6-feet 1 inch. Streetcar-only islands need not be accessible, and width varies between 5-feet and 7-feet.

Design Recommendations

Sidewalk, Curb Area and Crosswalks



Detail Plan at Fifth and Market

The great majority of sidewalk area construction was completed during the early and mid 1970's consistent with the 1968 Design Plan. During the intervening decade of use by the community and upkeep by the City, a number of lessons have been learned and perceptions changed regarding several of the elements in place.

As designed and partially installed in the original project, the granite-trimmed brick crosswalks and granite curbs and gutters are integral design elements within the total street plan. Ten years of experience, however, indicate that structural failures have occurred with certain components of each. Redesign of these elements must therefore alleviate the break-up problems while retaining the street's design integrity.

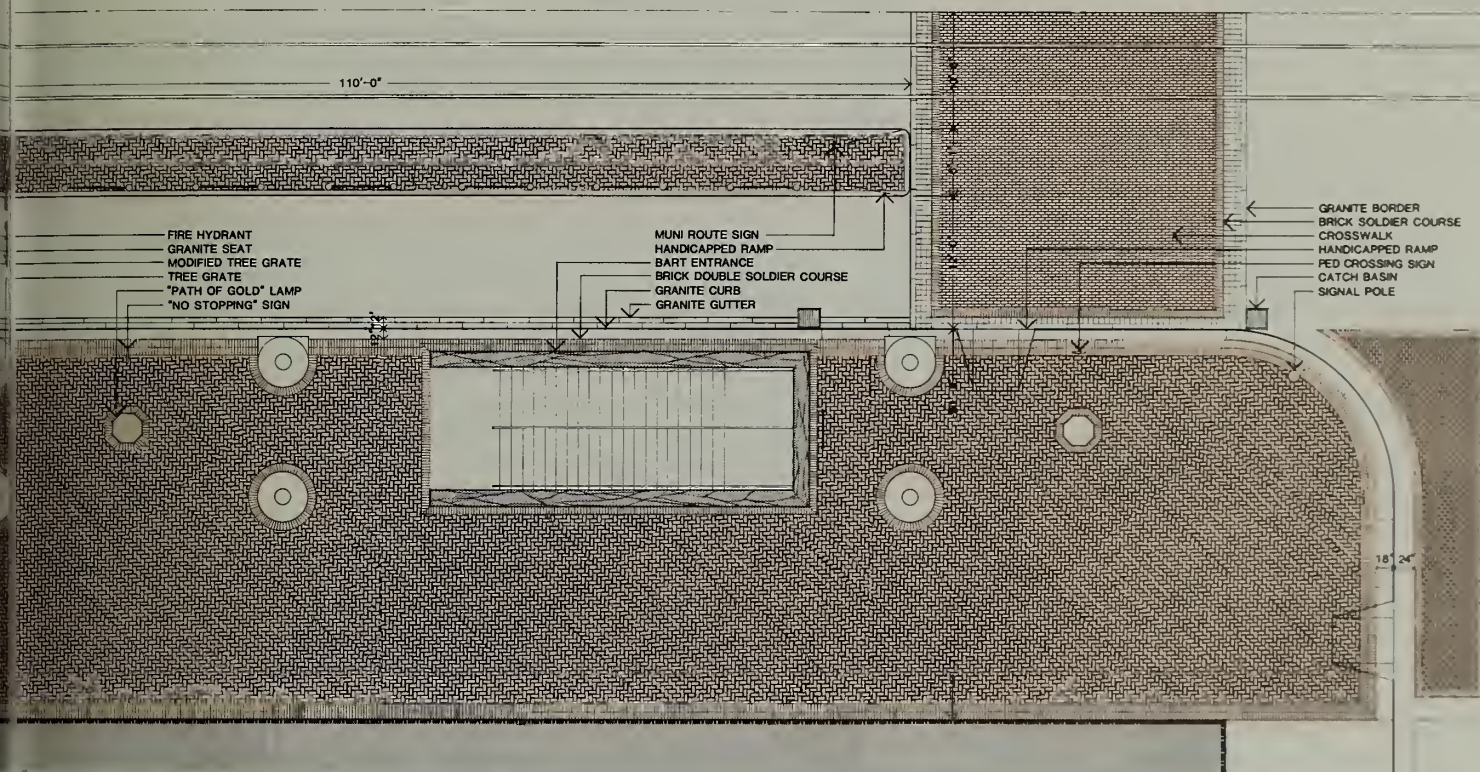
The Project Team recommends six revisions to the 1968 Design Plan in keeping with this objective:

1. **Curbs** - Granite continues to be the recommended material for all curb pieces. The Ciampi plan dimensions (15-18 inches) should be adhered to in all but island locations. To accommodate street widening

adjacent to islands, curb width may be reduced to 12-inches. While a uniform front-of-curb line is preferable, overall sidewalk width reductions ranging between 2-feet 4-inches and 3-feet 3-inches in the vicinity of islands is acceptable from a design standpoint. Attention must, however, be focused on complimenting curb transitions with existing brick work and other sidewalk elements. (e.g., tree grates.)

2. **Gutters** - Existing granite pavers installed along Market Street should be retained and repaired in accordance with improved installation techniques developed by DPW to enhance durability. This is recommended for all finished sections between McCoppin and Steuart. A majority of the Project Team recommends that new treatments in gutter areas between Seventh and Fremont should be placed in the form of two 6-inch granite strip pavers using improved installation techniques. Consideration of special sub-grade reinforcement of gutters at Muni curb stop locations is also encouraged due to recurrent break-up.

DPW dissents on the recommendation for new granite pavers between Seventh and Fremont. Their con-



Drawing by Ripley Associates

cern focuses on high cost and safety. No alternative materials recommendation for the gutters has been set forth by DPW.

3. **Loading Bays** - The curb and gutter treatments in loading bays should be the same as along the rest of the roadway, with a false gutter at the curb and a functional gutter along the street line. New curb should be designed with curve radii to accommodate mechanical street cleaning equipment. Finished curbs should not be altered, however.

Where Ciampi plan specifications called for granite paver stones within loading bay areas, it is recommended to substitute asphalt due to unsightly oil and grease stains.

4. **Crosswalks** - A majority of the Project Team recommends that all remaining crosswalks should be installed consistent with the Ciampi plan design pattern, using brick pavers and granite edge bands as originally specified. All new crosswalks should be constructed on concrete slabs using special, high tensile strength brick and mortar pursuant to improved DPW installation techniques developed to enhance

durability. Crosswalks are to be directly related to all boarding islands, both functionally and in terms of design, thus establishing a continuous pedestrian safety zone within the street area, also consistent with the 1968 design plan.

DPW supports the retention of brick and granite 'patterns' but dissents on the use of brick and granite materials to complete crosswalks. Again, high installation and maintenance costs together with concern for pedestrian safety underly their opposition. DPW makes no alternative materials recommendation.

5. **Catch Basins** - Only those basins adjacent to boarding islands must be relocated or reconstructed to remain flush with the final curb face.
6. **Handicap Ramps** - All handicap ramps must be totally recessed within the sidewalk area between Eighth and Steuart Streets. This will require reconstruction of brick in sidewalk areas near the curb, and is necessitated in order to improve drainage and durability in gutter areas.

Design Recommendations

Streetscape Elements

Street Furniture

In addition to major maintenance where needed, there is Project Team consensus on five recommendations:

1. **Kiosks** - The round kiosks should be retained, but with modifications to form, function or both. A removable plexiglass covering should be developed and installed to protect posted materials and deter vandalism. Private sector and non-profit organizations should then be solicited to actively use and maintain individual kiosks. If this fails, the kiosks should be removed.
2. **Newsracks** - There is unanimous agreement that newspapers should be located in well designed 'gang' dispensers at specified locations. Unit newspaper dispensers chained to poles or trees is unattractive and destructive.

DPW is presently conducting a demonstration effort with participating newspapers. The Project Team concurs in a recently approved Board of Supervisors ordinance (359-85) amending the Public Works Code to regulate placement, anchorage and maintenance of newsracks on public streets and sidewalks, and supports its enforcement.
3. **Bicycle Racks** - All remaining granite bicycle racks should be removed. Future provision to accommodate safe bicycle parking is necessary. The Market Street Advisory Committee shall coordinate with DPW staff and bicycle interest groups.
4. **Benches** - Reevaluation of granite bench design and location should be undertaken by DPW in order to accommodate pedestrian comfort and convenience while deterring vagrancy. In particular, a number of Muni stops no longer offer seating to waiting patrons and should be addressed.
5. **Transit Shelters** - The so-called 'T' shelters installed as part of the original project have not functioned well for a variety of reasons, including the relocation of a number of Muni stops to alternative sites. The 'T' shelters require massive foundation supports and are not easily moved.

The Project Team therefore recommends replacing all existing 'T' shelters. New Market Street Shelters will be provided beginning in 1986-87 as part of a PUC transit shelter program being established for Muni routes citywide. The program will require a private firm to erect and maintain the shelters according to contractually stipulated design and performance criteria. Final shelter design must be approved by the Arts Commission.

Art Program

The Project Team has adopted guidelines and recommends active support for implementing an art program as an integral part of Market Street construction:

1. Pursuant to San Francisco's "Art Enrichment/Art in Public Places Program" (Ord. No. 30-69) and consistent with federal grant funding guidelines, the equivalent of 2% of the project's capital costs should be allocated toward the inclusion of art. This is desirable and fundamental to the successful urban design of Market Street.
2. Installed art pieces should be concentrated at plazas, waiting areas and junctions with other major pedestrian spaces along Market Street - such as United Nations and Mechanics Plazas.
3. Provision should be made for "seasonal," changing installations along the length of Market Street. These changing exhibits may take three forms: banners hung from "Path of Gold" poles; poster art in proposed transit shelters; and a rotating sculptural program.

Arts Commission staff shall administer the implementation and operation of this program with policy guidance from the Market Street Community Advisory Committee.

Other Elements

Other Project Team recommendations for street design changes include:

1. **Signage** - Due to damage caused by street traffic, uniform relocation of street signage along Market Street between Steuart and McCoppin is recommended so that no part of the sign is closer than 25-inches from the curb. This in addition to general deterioration and the inability to replace custom fixtures presents the opportunity to re-sign the entire street.

The pole support and signage system along Market Street, while very well designed, was poorly engineered from a maintenance perspective. The design itself has served well for ten years. The system, which includes traffic and pedestrian signals, street signs and special area designations, is a comprehensive graphic design concept. If uniform changes are made in concert with relocation, the new concept should be provided by a graphic designer to preserve the coherence of the entire



Drawing by Gensler and Associates

system. An alternative system should be specified using catalogue components in deference to effective and inexpensive maintenance.

In the near term, DPW will be installing "Tow-Away No Stopping" and "Truck Zone" signs to the new standard between Fremont and Seventh, and relocating BART/Metro subway entrance signs to the 'head' of all street entrances to better serve pedestrians.

2. Fire Hydrants - The Committee approved the retention of fire hydrants in their present locations given existing front-of-curb alignments; sidewalk narrowing adjacent to islands shall require relocation of affected hydrants 27-inches in from the new curb face, per SFFD standard.

3. Landscape Materials - All broken, diseased and under-sized trees should be replaced with mature stock matching existing species, and a maintenance

program be initiated by DPW in conjunction with the Recreation & Park Department to ensure further growth. Any tree/treewell removals are unacceptable. (Note: The "non-weave" plan adds one tree to Market Street's inventory near Sixth Street.)

All private property owners fronting Market Street are encouraged to develop plantings at entryways and in window boxes where feasible and appropriate.

4. Path-of-Gold/Trolley Wire Poles - No realignment of P-O-G or trolley wire support poles is recommended.

5. Center and Stop Line Granite - The center line and stop line granite strips in the Ciampi plan have been eliminated due to maintenance and safety considerations.

Design Recommendations

Upper Market Street Beautification



Plan – McCoppin to Van Ness

Drawing by Ripley Associates

The "Upper Market Street Beautification and Bike Lane Project," adopted for Market Street between McCoppin and Diamond Streets consists of two well defined traffic lanes in each direction, two parking lanes and two bicycle lanes located between the parking lane and the outside lane of moving traffic. The plan also includes a raised, landscaped median, corner extensions and sidewalk amenities such as Path-of-Gold lighting and trees. The Project has been completed by DPW with the exception of two blocks between McCoppin and Duboce. The presence of streetcar tracks in this segment and lack of sufficient funding have effectively forestalled completion to date.

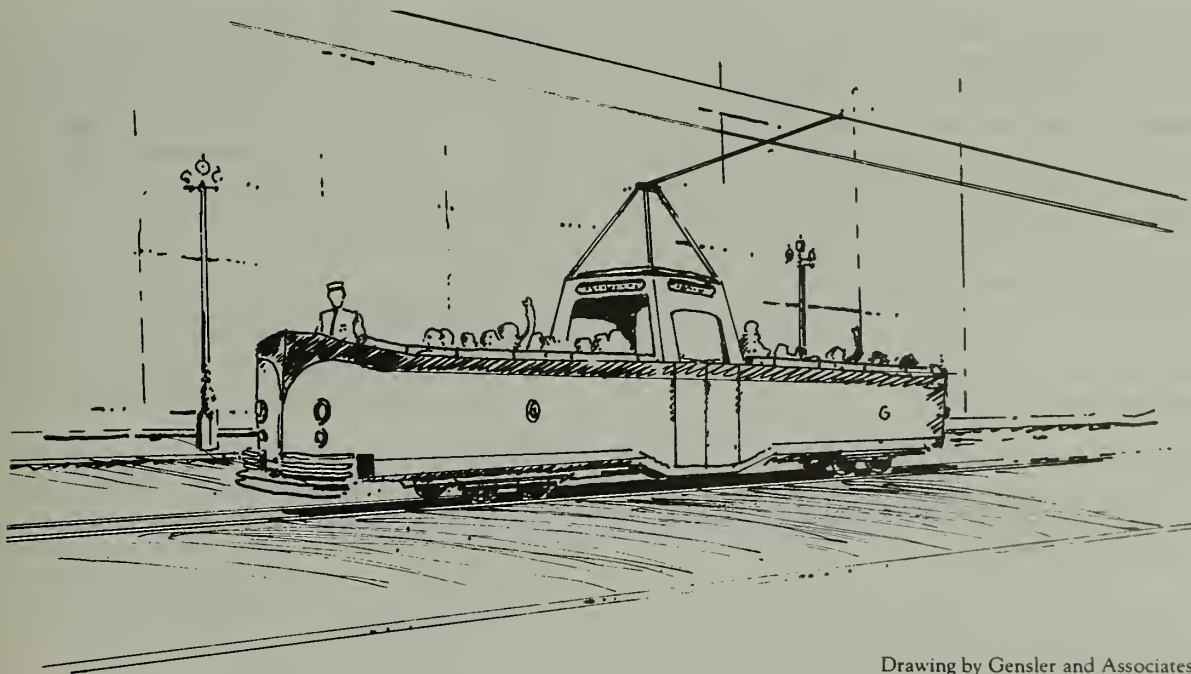
Board Resolution 160-83 stipulates that historic streetcar service be retained east of Van Ness Avenue only. (However, the Board of Supervisors has regularly approved funding for Trolley Festival service to the Castro since 1983.) The Resolution adds that necessary access trackage to maintenance facilities be provided as well.

Given the need to maintain an access route to Metro Center via Church Street for Market Street streetcars, with or without revenue service west of Van Ness, the Project Team recommends that the Upper Market Street Beautification Plan be amended to include streetcar tracks in the "fast" or center traffic lanes in the two blocks between McCoppin and Duboce. This would allow these two blocks to be completed to the original design specifications.

Further, the Project Team recommends that the principal design elements of the Upper Market Street Plan (i.e., a landscaped median with left turn lane pockets) be simultaneously extended east from McCoppin to the vicinity of Twelfth and Van Ness. New streetcar track should be aligned in the center traffic lanes in conjunction with the landscaped median in this segment as well, transitioning to a center-of-street alignment between Twelfth and Van Ness where Market Street narrows.

Historic Streetcar Recommendations

A Streetcar Plan for Market Street



Drawing by Gensler and Associates

Market Street has traditionally had streetcar operations. Rail cars ran on Market for 122 years prior to their removal in 1982, making it the longest continuously operated rail service on a main street anywhere in America. With the phased introduction of Muni Metro subway service during 1980 and 1981, streetcar service was discontinued on the surface of Market Street.

The decision to eliminate streetcar service was influenced by the 1968 Design Plan which envisioned the underground Muni Metro as an upgraded replacement service. Therefore, the removal of streetcar tracks and boarding islands, along with shifting most surface transit to Mission Street was assumed by architects and engineers who laid out the original street plans. Yet, between 1965 and 1985 approximately 35 million square feet of office space was added in the downtown area. The downtown's retail core flourished as well, and tourism continued to grow.

Increasing ridership demand generated by these developments together with other circulation constraints rendered impractical any proposal to route surface transit onto Mission Street. Five years after opening, Muni Metro is carrying more than twice the daily ridership (150,000 vs 70,000) carried by earlier streetcars, and cannot accommodate additional trips during

peak periods. Projected growth in downtown employment cannot rely solely upon the increased Metro capacity to be realized from a turn-around loop and other subway improvements.

The Board recognized these trends, first by acting in 1978 to retain overhead wires for surface routes on Market, and resolving in 1983 to expand transit to a 4-lane operation including historic streetcars.

Limited operation of streetcars was continued by Muni during 1981 and 1982. In 1983, through the auspices of the San Francisco Chamber of Commerce in cooperation with Muni, a "Historic Trolley Festival" was launched using streetcars of various ages and origins. Billed as a one-time replacement for the cable cars which were then undergoing rehabilitation, the festival quickly gained the support of many elements of the community as exhibiting the potential for full time operations. In subsequent years, the Festival has operated to even greater community acclaim, in conjunction with the cable cars.

San Francisco has apparently rediscovered its love affair for streetcars on Market Street, with daily ridership during the 1985 season averaging 5,500 trips.

Historic Streetcar Recommendations

'F' Line Streetcar Function and Operation

Market Street's streetcar, designated the 'F' Line, is primarily intended to supplement local transit service along the length of Market Street, from the Embarcadero west to at least Van Ness Avenue in the Civic Center. The benefits to be derived from historic streetcar service along Market Street are augmented by the Board's concurrent 1983 policy resolution to integrate it with the proposed 'E' Embarcadero streetcar line, thus providing 'F' Line service north along the waterfront to the Pier 39/Fishermans Wharf area.

An 'F' line streetcar will fulfill the following public transportation functions:

- Improved surface transit along Market Street to serve the new office space and other activity centers (e.g. Yerba Buena Gardens, Ferry Plaza) currently being constructed or planned.
- Direct transit service between Market Street and the developing northeastern waterfront, Fishermans Wharf and Fort Mason, with built-in capacity for growth.
- Some relief to the overcrowded cable car lines by diverting people who would enjoy the historic flavor of the streetcars for trips between downtown and Fishermans Wharf.
- Maintenance of surface rail access to downtown in the event of scheduled or unscheduled shutdown of the Market Street subway.

Muni Planning projects that over 23,000* daily riders will use the 'F' streetcars initially, with a capacity to absorb nearly *twice as many*. This is comparable with patronage on the cable car lines.

In terms of indirect benefits, the use of older, refurbished streetcars will add a highly visible, mobile element to the Market Street environment, reinforcing the historic context of the original Beautification Plan. The 'F' Line will further demonstrate the public sector's commitment to upgrading the local economy, and compliments the City's established image as a unique destination for visitors and tourists.

Muni estimates that a schedule which calls for 7½ minute headways (8 cars per hour per direction) would be sufficient during the 12 hours of greatest demand, dropping back to 15 minute headways for the remaining 8 hours of the operating day. A round-trip running time of 90 minutes (Castro/Market - Fishermans Wharf) is based on the current 8-Market and 32-Embarcadero schedules.

Initially, 15 vehicles would be required to operate along the 'F' route, not including spares. Muni figures indicate 225 vehicle hours of daily operation under this plan, or just over 82,000 vehicle hours per year.

It is further assumed for operations and financial planning purposes that an 'F' streetcar operating along Market Street and the northeastern waterfront would substitute for part or all of existing bus and trolley services which duplicate the proposed streetcar route (i.e., 8-Market and 32-Embarcadero lines).

Annual Operating Costs and Revenues (1985-86 \$'s)

	<u>Direct Cost (1)</u>	<u>Direct Revenue(2)</u>	<u>Average Daily Trips</u>
Alt. Western Termini:			
Van Ness/Market	\$2.3-3.7M	\$2.4M	15,900
Castro/Market	2.6-4.3M	3.4M	23,400

Notes

1. Cost range for 1-2 person crews: \$32-52 per veh-hr. based on actual Historic Trolley Festival costs. Any additional cost savings due to service substitution would be deducted from net 'F' Line costs.
2. Revenue from 40¢ average fare collected per trip, based on actual No. 8 trolley receipts.

*This assumes a western terminus at Castro/Market, and an eastern terminus at Fishermans Wharf/Fort Mason.



- 19.

Historic Streetcar Recommendations

'F' Line Streetcar Rolling Stock



Drawing by Gensler and Associates

Muni's inventory of streetcars is as follows:

- 50 President's Conference Commission (PCC) Cars
- 9 Melbourne Cars
- 11 Historic Trolley Festival Cars

Substantial rebuilding of mechanical components and general refurbishment is needed for the PCC cars stored at Pier 70. Reconfiguration of the Melbourne Cars for one-man operation is also recommended. Historic Festival equipment can be reserved for weekends, holidays and other special occasions.

Muni's reserve streetcar fleet availability and mix nevertheless offers excellent opportunities to satisfy an operating need for 15 on-line cars plus 5 spares for regular 'F' Line service.

Rehabilitation costs for each of the 20 PCC cars needed for 'F' Line service have been calculated based on the following work to be done:

Direct Labor	\$91,000 per car
Overhead	70,000 per car
Parts & Materials	77,000 per car
Transportation	12,000 per car
Total Per Car	\$250,000

Only '1100' series cars should be used from the Pier 70 inventory since they are cheaper to restore and easier to maintain. At least one year's lead time would be needed to obtain parts, with another year for the actual work.

Historic Streetcar Recommendations

Streetcar Storage/Maintenance Facility



Key

— 'F'-Line Route

..... Connecting Tracks

Three sites for streetcar storage and maintenance have been identified:

- Metro Center
- Duboce Portal
- Southeastern Waterfront

Historic cars currently are stored and receive heavy maintenance at Metro Center. However, as a long-term 'F' Line facility, Metro Center would have to be expanded, possibly including the upper lot presently used for material storage and auto parking.

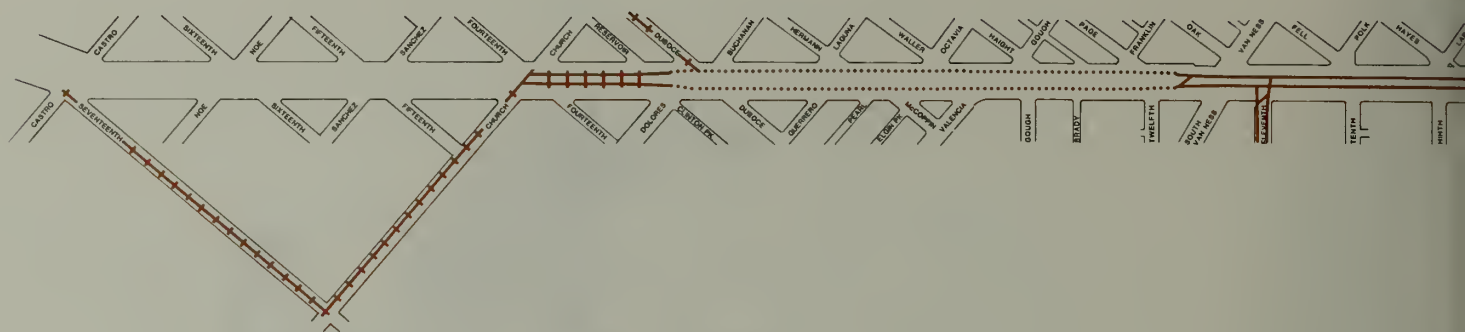
Duboce is also presently used by the historic cars for overnight storage and light maintenance. Long-term 'F' Line day time storage and pullout capability is seen as available here, but no maintenance facility is contemplated given surrounding land-use. Funds for landscaping and securing the Duboce Portal area are presently programmed by Muni and DPW has plans for a bike path along the same right-of-way.

The I-280 Transfer Concept Program has developed broad outlines for a streetcar storage and maintenance facility for both 'E' and 'F' Line cars in the general vicinity of Mission Bay. Given project staging wherein 'E' Line tracks would be installed toward the end of the I-280 process however, an interim 'F' Line capability may be necessary.

A final decision on siting and constructing a combined 'E' and 'F' streetcar storage and maintenance facility will be deferred pending further technical analysis and recommendations from the I-280 and Mission Bay projects.

Historic Streetcar Recommendations

'F' Line Route and Termini



The Project Team recommends the following 'F' Line streetcar route and termini:

1. **Core Segment - Redesign of Market Street**
between Van Ness Avenue and Fremont Street has been assigned top priority by the Project Team in order to expedite the development of an operating configuration for Muni's 4-lane Transit Thoroughfare. Muni service totalling 185,000 trips each day is affected; the completion of the Trolley Overhead Project lends further urgency to this objective.

The so-called "core" segment of 'F' Line streetcar tracks is incorporated in planning decisions for street redesign along this alignment as one element of the Transit Thoroughfare.

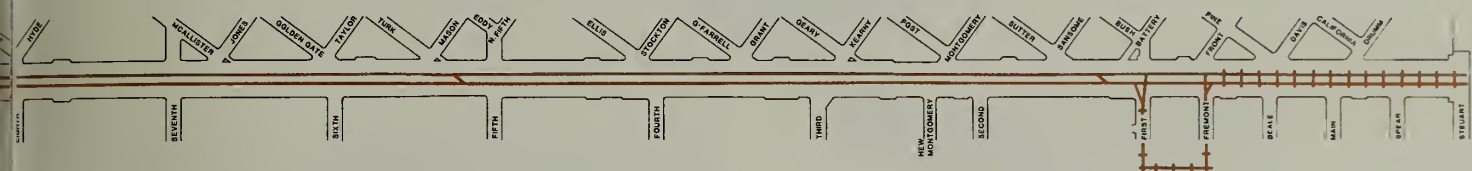
2. **Eastern Route and E-Line Interconnection -**
Extension of new streetcar tracks east along Market Street from the Transbay Terminal Loop to the intersection of Steuart and Market is recommended. Underground construction of the Muni Metro turnaround will prevent laying tracks between Spear and Steuart until after 1990, however. Boarding islands for streetcars at Drumm/Main and Market are recommended to be added under a "non-weave" design configuration consistent with the remainder of the street. Given installation of a temporary track cross-over, they may serve as an interim eastern terminus for the 'F' Line pending completion of the subway turnaround.

The recommended alignment for 'F' Line tracks between Steuart/Market and the 'E' Line along the Embarcadero will be developed as part of the ongoing I-280 Project's technical analysis of traffic, transit and land-use issues. The Project Team does recommend that the preferred interconnection alignment be in the area between Market Street/Justin Herman Plaza and Mission Street.

3. **Western Route and Terminus -** Existing Board policy supports the retention of historic streetcar service on Market Street only as far west as Van Ness Avenue.

The corresponding Project Team and TPG recommendation is therefore to designate the islands at Van Ness and Market as an interim western terminus for 'F' Line streetcars. A temporary, leading point cross-over west of Van Ness at Twelfth will accommodate double-ended cars in this operation, and is also recommended. Single-ended cars will use the existing 'weave' track at Eleventh Street, which should be rehabilitated at the same time as the core segment of track on Market Street.

The proposed Twelfth Street cross-over will make the existing Ninth Street crossover redundant, and the Project Team recommends its removal as part of core segment track reconstruction. The existing crossover near Sixth Street should be relocated at the same time to just west of the inbound boarding island at Fifth Street to allow efficient short-run service between the Powell Street cable car turntable and Fishermans Wharf. The First Street "leading point" crossover should be reconstructed as a "trailing point," and (presuming Transbay Terminal loop tracks are to be retained) switches should be



Key

— Core Segment Track	— Existing Track
— New Track	... Realigned Track

installed at First and Fremont Streets to allow the loop to be used for short-run service both by streetcars coming from Fishermans Wharf as well as from the Upper Market.

Reconstruction of the Transbay Terminal loop tracks themselves is not recommended pending a decision by the State on redevelopment plans for the Terminal site.

Regarding a long-term western terminus for 'F' Line streetcars, a majority of the Project Team recommends that the Board of Supervisors amend policy as stated in Res. 160-83, in conformance with documented support from the Upper Market neighborhoods and businesses. Specifically, it is recommended that 'F' Line streetcars operate on Market Street as far west as Church Street, with an ultimate western terminus in the vicinity of Castro and Market Streets.

DPW dissents on any recommendations for revenue streetcar service west of Van Ness Avenue that will require boarding islands. Their concern revolves around the potential degradation in traffic operations brought about by the placement of boarding islands in the street area. DPW does not oppose the realignment of streetcar tracks alone on Market between Twelfth and Church to accommodate the Upper Market Street design plan.

Muni is equally adamant in recommending that 'F' Line revenue service west of Van Ness be endorsed, in keeping with the line's demonstrated performance to

the Upper Market. The majority of the Project Team concurs. However, Muni suggests that in lieu of adapting tracks to the Upper Market Street Beautification design as recommended by the Project Team, streetcar tracks be left in their present center street exclusive right-of-way between Twelfth and Duboce. Traffic conflicts of concern to DPW could then be partially avoided.

Contingent upon the Board amending its policy regarding 'F' Line service west of Van Ness, and consistent with the street design plan endorsed by a majority of the Project Team for Upper Market Street west of Van Ness, it is recommended that new streetcar track should be aligned in the center traffic lanes in conjunction with a landscaped median in each direction between Twelfth and Church with boarding islands. Installation of new streetcar track between Duboce and Church on Market should be undertaken as the top priority for new track, given the significant operating benefits of separating streetcar and Metro operations at the Duboce Portal. Inbound and outbound boarding islands should be placed in the street area at Gough and at Laguna, notwithstanding DPW objections. Options for a stop in the vicinity of Duboce will also be developed.

A recommendation regarding streetcar tracks on Market Street west of Church to Castro and a permanent western terminus facility is being purposely deferred until such time as tracks on Seventeenth Street need rebuilding (5-10 years.) This position is consistent with the lack of neighborhood consensus regarding Market Street tracks west of Church Street at this time.

Funding and Implementation Strategy

Market Street Transit Thoroughfare and 'F' Line Streetcar Project

Capital Cost Estimate
(1985-86 \$'s)

PHASE A

Fremont Street to Van Ness Avenue

Traffic Control	\$ 900,000
Street Area Regrading/Repaving	2,725,000
Track Work	5,111,000
Public Utilities Location*	143,000
Boarding Islands	737,000
Crosswalks	2,607,000
Curbs, Gutter, Sidewalk Area	3,410,000
Street Furniture, Trees, Signage	125,000
Other (Handicap Ramps, Catch Basins, Etc.)	442,000

Contract Cost: \$16,200,000

Contingencies (10%) 1,620,000

Construction Cost: \$17,820,000

Art Program (2%) 356,000

Design & Construction Management (20%) 3,564,000

PROJECT COST, PHASE A: \$21,740,000

PHASE B

Fremont Street to Steuart Street

Van Ness Avenue to Church Street

Traffic Control	\$ 200,000
Street Area Regrading/Repaving	145,000
Track Work	3,911,000
Public Utilities Location*	-0-
Boarding Islands	39,000
Crosswalks	N/A
Curbs, Gutter, Sidewalk Area	109,000
Street Furniture, Trees, Signage	-0-
Other (Handicap Ramps, Catch Basins, Landscaped Medians)	340,000

Contract Cost: \$4,744,000

Contingencies (10%) 474,000

Construction Cost: \$5,218,000

Art Program (2%) 104,000

Design & Construction Management (20%) 1,044,000

PROJECT COST, PHASE B: \$ 6,366,000

PCC Streetcar Rehabilitation: 5,000,000

TOTAL MARKET STREET PROJECT COST: \$33,106,000

* Private utilities relocation costs are not included.

Cost estimates shown correspond to implementing the Project Team's recommended plan in completing Market Street as a Transit Thoroughfare.

In preparing these estimates, the costs for completing the Transit Thoroughfare segment – Fremont Street to Van Ness Avenue – have been shown separately. This emphasizes the highest priority for completing the portion of Market Street affecting the greatest number of Muni riders, with corresponding potential to achieve the greatest systemwide productivity and efficiency improvements for Muni operations.

As a Transit Thoroughfare Project, all Market Street funding should be pursued in the context of a Muni capital improvement project. Substantial gasoline excise tax revenues reserved in earlier years to complete the street improvements must therefore be made available as local match to leverage state and federal transit grant resources.

Accordingly, a grant application has been prepared by PUC's Finance Bureau to accompany this report. It seeks to authorize \$946,500 in Federal Aid Urban grant funds, plus local match of \$151,500, for fiscal 1986-87. The PUC's Utilities Engineering Bureau shall complete final design for Phase A of the project using these funds. The Board and Mayor are requested to approve the grant application simultaneously with the planning recommendations included herein in order to expedite this process.

The bulk of capital funding for the Market Street Transit Thoroughfare will be sought from federal, state, regional and local transit grant resources commencing with fiscal year 1987-88. The project will be incorporated into Muni's Capital Improvement Program, and be prioritized to compete for available funding. Earliest completion under these circumstances would be calendar year 1990.

Policy Oversight

Ongoing policy oversight is needed in order to monitor project implementation and street performance, with the capability of addressing unanticipated issues as they arise.

The Project Team recommends that the Market Street Community Advisory Committee be maintained in a policy oversight capacity, working through the Project Manager designated by PUC's Utilities Engineering Bureau during project design and construction stages. Intermittent meetings shall be called by the Project Manager to address policy matters requiring resolution by the CAC.

Following project completion and thereafter, the Market Street Community Advisory Committee shall meet at least once each year upon request of the Executive Director for the Greater Market Street Development Association to monitor street maintenance and operations. Committee findings shall be communicated to the Mayor, the General Manager of the PUC, and the Director of Public Works for response and action.

Subcommittees may be designated by the CAC to coordinate specific endeavors with responsible city departments, such as the execution of a street art program, landscaping initiatives, bicycle access planning and the like.

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